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REMARKS

Applicants respectfully request reconsideration of application identified above. Claims 1-2, 4-11 and 14 are pending; claims 1 and 9-11 are amended; claims 3 and 12-13 are cancelled; and claim 14 is new. The rejections as conceivably applied to the pending claims are respectfully traversed.

I. New Declaration

The Examiner stated that the previously submitted Declaration was defective. A new Declaration in compliance with 37 C.F.R. §1.67(a) is submitted with this Response. It is respectfully submitted that this Declaration is proper and should be accepted.

II. Specification Objections

The specification was objected to because it omitted the heading "Brief Description of the Drawings." The specification has been amended to recite this heading, as well as a new heading, "Detailed Description of the Invention."

III. Claim Rejections Under 35 U.S.C. §112

As previously presented, claim 1 was rejected under 35 U.S.C. §112, Second Paragraph as being indefinite. Applicants have amended claim 1 to recite the method steps using a miniaturized reaction vessel. Therefore, it is respectfully submitted that this rejection is now improper and should be withdrawn.

IV. Prior Art Rejections

A. DE 199 25 184

As previously presented, claims 1-13 were rejected under 35 U.S.C. §102(b) as being anticipated by the English abstract of DE 199 25 184 A1 (“DE-184”).

DE-184 is directed to the preparation of particles which are used for encapsulating therapeutic agents. The prepared particles are formed from biodegradables, synthetic and/or natural materials. See Pg. 12, Ln. 32 through Pg. 13, Ln. 2 of the machine translated version of DE-184 submitted with this Response. More specifically, the nanoparticles described in DE-184 are *polymeric* materials rather than *crystalline* nanoparticles.

Applicants respectfully submit that DE-184 fails to anticipate amended independent claims 1 and 11 and new claim 14 because DE-184 fails to disclose: (a) controlling the physical and chemical conditions in the reaction chamber so that reaction occurs to form crystalline nanoparticles (amended claim 1); (b) the formation of pre-selected, defined dimension crystalline nanoparticles (amended claim 1); (c) a miniaturized crystalline nanoparticle production device comprising a reaction chamber that receives reactant flow sufficient to form crystalline nanoparticles (amended claim 11); (d) a miniaturized crystalline nanoparticle production device including at least one of a temperature varying element, an illumination element and an inlet positioned to provide an off center continuous reactant flow into the reaction chamber, that produce a variation in the reaction conditions across a reaction chamber so that the formed crystalline nanoparticles are of varying predetermined dimensions (amended independent claim 11); or (e) a miniaturized crystalline nanoparticle device comprising a second outlet and inlet to allow recycling of unreacted reactants

into the reaction chamber (new claim 14). Again, in contrast, the DE-184 particles are polymeric materials rather than crystalline nanoparticles. As set forth in the present application, crystalline nanoparticles have physical characteristics that are determined by their physical size and shape. Pg. 1, Lns. 6-23. For example, crystalline nanoparticles can have optical and electronic properties which lead to applications in a wide range of electronic devices; and these properties can be tailored by providing crystalline nanoparticles of a particular pre-selected dimension. It is therefore desirable to provide a method for the production of crystalline nanoparticles of a pre-selected, defined dimension. The same considerations do not apply to particles such as those in DE-184 comprising polymeric materials. The dimensions of such polymeric materials are not controllable as with crystalline nanoparticles and have entirely different physical characteristics as compared to crystalline nanoparticles. Furthermore, DE-184 mentions nothing of recycling unreacted reactants into a reaction chamber, and nothing of elements to produce gradients across reaction chambers.

Applicants respectfully submit that the rejections of the amended and new claims based on DE-184 are unfounded and improper and therefore should be withdrawn.

Claims 2, 4-8 and 10, as well as claims 13 depend from amended independent claim 1 and amended independent claim 11, respectively, and are therefore allowable for at least the reasons noted above. Applicants further respectfully submit that DE-184 does not anticipate: (a) dependent claim 2 because the recited reaction chamber volume is not disclosed in DE-184 therein; (b) dependent claim 4 because there is no mention of cadmium sulphide nanoparticles in DE-184; (c) dependent claim 5 because DE-184 apparently does not disclose a stabilizer being added; or (d) dependent claim 6 because Applicants can find no mention of nanoparticles being monodispersed. If

the Examiner maintains the rejection, Applicants respectfully request the Examiner to point out the specific disclosure allegedly relevant to these dependent claims.

B. Wang

As previously presented, claims 1-13 were rejected under 35 U.S.C. §102(b) as being anticipated by WO 00/23181 to Wang ("Wang").

Wang describes a segmented flow reaction process. In the segmented (plug) flow process, reactants are supplied at intervals to the reaction chamber to form a plurality of separate and confined reaction zones within a liquid carrier. This is represented schematically in Wang Figs. 1 and 3.

Applicants respectfully submit that Wang does not anticipate the amended independent claims 1 and 11 and new claim 14 because it fails to disclose: (a) supplying a continuous reactant flow to the reactant chamber, or continuously extracting formed crystalline nanoparticles from the reaction chamber (amended independent claim 1); (b) a device that is arranged to allow a continuous reactant flow into a reaction chamber and to allow a continuous flow of formed crystalline nanoparticles out an outlet—let alone at least one of a temperature varying element, an illumination element, and an inlet positioned to provide an off center continuous reactant flow into the reaction chamber, that produce a variation in the reaction conditions across a reaction chamber so that the formed crystalline nanoparticles are of varying predetermined dimensions (amended independent claim 11); or (c) a miniaturized crystalline nanoparticle production device comprising, among other things, a second outlet and inlet to allow recycling of unreacted reactants into a reaction chamber (new claim 14). In contrast, Wang discloses a segmented flow process rather

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than a continuous flow process. The claimed continuous flow process is significantly different from the segmented flow process. For example, a continuous flow process can be carried out using a simple apparatus design, without necessitating use of an injection valve apparatus or the like which is required in segmented flow process. Consequently, the use of continuous flow methods in devices can provide advantages in terms of reactant throughput over the use of a segmented flow method. Furthermore, the use of a segmented flow method can put limitations on the reaction temperature used because at high reaction temperatures, the combined reaction zones in the segmented flow process can become disrupted. Finally, Wang fails to even contemplate adding one or more components to produce crystalline nanoparticles of varying predetermined dimensions, let alone recycling unreacted materials.

Applicants respectfully submit that the rejection of the amended and new independent claims based on Wang are now unfounded and improper, and therefore should be withdrawn.

Claims 2, 4-8 and 10, as well as claims 13 depend from amended independent claim 1 and amended independent claim 11, respectively, and are therefore allowable for at least the reasons noted above. Applicants further respectfully submit that Wang does not anticipate: (a) dependent claim 2 because the recited reaction chamber volume is not disclosed in Wang therein; (b) dependent claim 4 because there is no mention of cadmium sulphide nanoparticles in Wang; (c) dependent claim 5 because Wang apparently does not disclose a stabilizer being added; or (d) dependent claim 6 because Applicants can find no mention of nanoparticles being monodispersed.

C. Schwalbe and Chatterjee

As previously presented, claim 11 was rejected as anticipated under 35 U.S.C. §§102(e) or 102(b) by U.S. Patent 6,537,506 to Schwalbe (“Schwalbe”) or U.S. Patent 6,036,927 to Chatterjee (“Chatterjee”), respectively.

Applicants respectfully submit that these references fail to anticipate amended independent claim 11 and new claim 14 because these references fail to disclose: (a) a miniaturized crystalline nanoparticle production device including a reaction chamber that receives reactant flow sufficient to form crystalline nanoparticles, wherein the device is arranged to allow the continuous reactant flow into the reaction chamber or to allow a continuous flow of formed crystalline nanoparticles out the outlet (amended claim 11); (b) a device including at least one of a temperature varying element, an illumination element, and an inlet positioned to provide an off-center continuous reactant flow into the reaction chamber, that produce a variation in the reaction conditions across a reaction chamber so that the formed crystalline nanoparticles are of varying predetermined dimensions (amended independent claim 11); or (c) a miniaturized crystalline production device comprising a second outlet and inlet to allow recycling of unreacted reactants into the reaction chamber (new claim 14). In contrast, for example, Chatterjee has nothing to do with crystalline nanoparticles or recycling inlets and outlets. Further, although Chatterjee shows a heating element 38, there is no indication that this element is positioned to produce a *gradient* in reaction conditions across the reaction chamber. Instead, the Chatterjee heater 38 is arranged to provide uniform heating across the chamber.

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Applicants respectfully submit that the rejection of the amended and new claims based on Schwalbe and Chatterjee are now unfounded and improper and therefore should be withdrawn.

V. Information Disclosure Statement

Applicants submit herewith an Information Disclosure Statement under 37 C.F.R. §1.97(c) and respectfully request the Examiner to consider the references cited therein. With this Information Disclosure Statement, Applicants submit a recent, cursory machine translation of DE 199 25 184 A1.

CONCLUSION

In view of the above amendments and Remarks, Applicants respectfully submit that the present application is in condition for allowance. A notice to that effect is earnestly and respectfully requested. If the Examiner believes that it would be helpful to resolve any outstanding issues, he is invited to contact the undersigned.

Respectfully submitted,

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